

What is claimed is:

- 1        1. A method of determining a status of a peer protocol initiated on a plurality  
2 of members of a group in a clustered computer system, the method comprising:
  - 3            (a) locally tracking protocol progress information within each member  
4 of the group; and
  - 5            (b) responding to a query directed to a selected member of the group  
6 by providing the protocol progress information locally tracked by the selected  
7 member.
- 1        2. The method of claim 1, wherein locally tracking protocol progress  
2 information includes tracking, within a first member of the group, acknowledgment  
3 (ACK) messages directed to the first member by each other member of the group.
- 1        3. The method of claim 1, wherein locally tracking protocol progress  
2 information includes:
  - 3            (a) tracking, within a first member of the group, a current  
4 acknowledgment (ACK) round for the first member, the current ACK round  
5 associated with a current peer protocol being processed by the first member;  
6 and
  - 7            (b) tracking, within the first member, a last ACK round received  
8 parameter associated with each other member of the group, the last ACK  
9 round received parameter for each other member identifying a peer protocol  
10 associated with a last received ACK message from such other member.
- 1        4. The method of claim 3, wherein locally tracking protocol progress  
2 information further includes updating the current ACK round for the first member in  
3 response to receipt of ACK messages for the current peer protocol from all other  
4 members of the group.
- 1        5. The method of claim 1, wherein locally tracking protocol progress  
2 information includes updating the protocol progress information for a first member of

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3 the group in response to receipt of an acknowledgment (ACK) message directed to the  
4 first member.

1       6. The method of claim 1, further comprising:

2             (a) waiting on a resource required by a protocol being processed on  
3               the selected member; and

4             (b) monitoring for receipt of the query by the selected member while  
5               waiting on the resource.

1       7. The method of claim 6, wherein the protocol is a peer protocol, and  
2       wherein waiting on the resource includes waiting for receipt of an acknowledgment  
3       (ACK) message directed to the selected member.

1       8. The method of claim 6, wherein the protocol is a local protocol, and  
2       wherein waiting on the resource includes waiting on a local resource requested by the  
3       selected member.

1       9. The method of claim 8, wherein the local resource is selected from the  
2       group consisting of a lock and a creation of a new job.

1       10. The method of claim 6, wherein waiting on the resource includes waiting  
2       for receipt of a message by a local message queue for the selected member, and  
3       wherein monitoring for receipt of the query includes monitoring the local message  
4       queue for receipt of a query message.

1       11. The method of claim 1, wherein locally tracking protocol progress  
2       information within each member of the group includes locally tracking within the  
3       selected member protocol progress information associated with at least one other  
4       member in the group.

1           12. The method of claim 1, wherein locally tracking protocol progress  
2 information within each member of the group includes locally tracking within the  
3 selected member protocol progress information associated with all other members in  
4 the group.

1           13. The method of claim 1, wherein locally tracking protocol progress  
2 information within each member of the group includes locally tracking within each  
3 member protocol progress information associated with each other member in the  
4 group.

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1           14. An apparatus, comprising:

2                 (a) a memory; and

3                 (b) a program resident in the memory, the program configured to  
4                 determine a status of a peer protocol initiated on a plurality of members of a  
5                 group in a clustered computer system by locally tracking protocol progress  
6                 information within at least one member of the group, and providing the  
7                 protocol progress information locally tracked by a member of the group in  
8                 response to a query directed to such member.

1           15. The apparatus of claim 14, wherein the program is configured to locally  
2           track protocol progress information by tracking, within a first member of the group,  
3           acknowledgment (ACK) messages directed to the first member by each other member  
4           of the group.

1           16. The apparatus of claim 14, wherein the program is configured to locally  
2           track protocol progress information by tracking, within a first member of the group, a  
3           current acknowledgment (ACK) round for the first member, and tracking, within the  
4           first member, a last ACK round received parameter associated with each other  
5           member of the group, wherein the current ACK round is associated with a current  
6           peer protocol being processed by the first member, and wherein the last ACK round  
7           received parameter for each other member identifies a peer protocol associated with a  
8           last received ACK message from such other member.

1           17. The apparatus of claim 14, wherein the program is further configured to  
2           wait on a resource required by a protocol being processed on the selected member,  
3           and monitor for receipt of the query by the selected member while waiting on the  
4           resource.

1           18. The apparatus of claim 17, wherein the protocol is a peer protocol, and  
2           wherein the program is configured to wait on the resource by waiting for receipt of an  
3           acknowledgment (ACK) message directed to the selected member.

1           19. The apparatus of claim 17, wherein the protocol is a local protocol, and  
2       wherein the program is configured to wait on the resource by waiting on a local  
3       resource requested by the selected member.

1           20. The apparatus of claim 17, wherein the program is configured to locally  
2 track protocol progress information by locally tracking within a first member protocol  
3 progress information associated with at least one other member in the group.

1            21. The apparatus of claim 17, wherein the program is configured to locally  
2 track protocol progress information by locally tracking within each member protocol  
3 progress information associated with each other member in the group.

- 1           22. A clustered computer system, comprising:

2                 (a) a plurality of nodes coupled to one another over a network;

3                 (b) a plurality of member jobs defining a group and configured to be

4                   executed by at least one of the plurality of nodes; and

5                 (c) a program configured to be executed by at least one of the plurality

6                   of nodes to determine a status of a peer protocol initiated on the plurality of

7                   members by locally tracking protocol progress information within at least one

8                   member of the group, and providing the protocol progress information locally

9                   tracked by a member of the group in response to a query directed to such

10                  member.

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1                   23. A program product, comprising:

2                             (a) a program configured to determine a status of a peer protocol  
3                             initiated on a plurality of members of a group in a clustered computer system  
4                             by locally tracking protocol progress information within at least one member  
5                             of the group, and providing the protocol progress information locally tracked  
6                             by a member of the group in response to a query directed to such member; and  
7                             (b) a signal bearing medium bearing the program.

1            24. The program product of claim 23, wherein the signal bearing medium  
2 includes at least one of a recordable medium and a transmission medium.

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- 1        25. An apparatus, comprising:
- 2            (a) a memory; and
- 3            (b) a program, resident in the memory, the program configured to
- 4            monitor for receipt of a query message by a member of a group in a clustered
- 5            computer system while a current protocol for the member is waiting on a
- 6            resource, the program further configured to output protocol status information
- 7            in response to receipt of the query message.
- 1        26. The apparatus of claim 25, wherein the resource is selected from the
- 2            group consisting of a local resource and an acknowledgment (ACK) message.

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